THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 37. SEPTEMBER 11, 1948 VOL. 55.

Notes on the Behaviour of the Foot-and-Mouth Virus during the 1941 Epizootic in Eire*

T. F. O'BRIEN, M.R.C.V.S.,

DEPARTMENT OF AGRICULTURE, EIRE

It was with great diffidence that I accepted the invitation to prepare and read this paper for you here this evening. I fully appreciate the honour but I feared lest I should not do justice to this important subject.

However, your Council was most anxious to have some record of experiences gained during the epidemic of foot-and-mouth disease which occurred in this country last year. I have agreed, as it were, to set the ball rolling by giving you some of my personal observations. I realise that some of my colleagues can give you more interesting details than I can offer and for that reason I propose to make this paper as short as possible in order to give all an opportunity to join in the discussion to follow. I therefore appeal to everybody here to-night to let us have the benefit of their experiences; they should not, however, expect me to answer all their conundrums. At the outset I would like it to be understood that my observations are those of a field worker who has no intention of invading the realms of the research or associated scientist.

I propose to deal first with the cause, transmission, symptoms, diagnosis and differential diagnosis of foot-and-mouth disease and then to give you a résumé of some of my own experiences. As you will understand, all questions of policy are debarred.

I must remind you that foot-and-mouth is a scheduled and notifiable disease and all outbreaks or suspected outbreaks must be notified to the Gardai by the owner or person in charge as soon as possible. The Gardai must immediately inform the Department by telegram or telephone. The onus of reporting is also on a practitioner should a case or suspected case come under his notice. The departmental machinery is then set in motion.

In dealing with foot-and-mouth disease, speed is a great factor, the rapidity with which the report is sent in being important, so that the affected animals and immediate in-contacts will be disposed of with the least possible delay..

Foot-and-mouth is a highly contagious disease affecting ruminants (including deer), also swine and hedgehogs. It is caused by a filtrable virus of which three chief varieties, A, O and C, are recognised. The O is said to be the most predominant variety in Europe. Immunity to one variety does not infer resistance to the other strains.

Infection is characterised by fever and eruptions in the form of vesicles on the mouth and feet and sometimes on the muzzle and udder (teats). The contents of the vesicles are highly virulent and any materials contaminated from them such as saliva, foodstuffs, litter, dung, hides, etc., are a potent source of infection. Milk is also infective, but blood is said to be infective only in the early stages of the disease. In hay, hair, etc., the virus may live several months and in the bone marrow of frozen meat it was found to be infective after 70 days. Outside the body, the virus remains active only for a short time (probably not more than a month). It is readily destroyed by ordinary disinfectants such as 2 per cent. formalin or 4 per cent. sodium carbonate and also by desiccation, sunlight and putrefaction. Alkalies such as sodium carbonate above mentioned are regarded as being more effective than coal-tar compounds, as disinfecting agents.

Transmission.—By direct contact with affected animals or their attendants, contaminated clothing and utensils, infected fodder, litter, manure and water, also contaminated vehicles as railway wagons and lorries.

The disease may be introduced by any of these means, and by carcases, parts of carcases, offals, bones, milk or milk products and contaminated lymph. Dogs, cats, foxes, hares, rabbits, rats and birds may spread infection mechanically.

Incubation Period.—This may be as short as one day or delayed to seven or even ten days. Pigs are said to develop symptoms in one to two days after infection.

Mortality.—Mortality is not usually high except in young stock as calves, lambs and suck pigs. These animals usually die from toxaemia without showing any characteristic symptom or lesion.

When investigating a reported case the veterinary officer, before entering the premises, must be suitably attired in rubber coat, boots and gloves and come provided with thermometer, electric torch, fine spray stirrup-pump, disinfectant and official forms. Having made some preliminary enquiries from the owner or person in charge, it would be advisable for him to inspect the in-contact animals first, before he has run the risk of becoming contaminated, although if foot-and-mouth exists on the premises it will probably have already been spread by the attendants. Do not immediately examine the animal: observe it for some little time, using eyes and ears to fullest advantage. If it is a case of foot-and-mouth you will notice that the animal is dull and perhaps not feeding. If not recumbent, it may be uneasy on its feet and kicking as if to dislodge a foreign body. You will notice that the animal is slavering, *i.e.*, having a frothy saliva around the lips or slender string of mucus from the mouth. Periodically—about every 30 seconds or so—the animal may make a gentle smacking sound with its lips. Temperature, when taken in the early febrile stage may be 104°-106° F., but usually it falls following rupture of the vesicles. If the animal is a milch cow you will, on enquiry, probably be told that there was a sudden drop in her milk yield. Now examine the mouth carefully, observing the whole interior, before grasping the tongue. Pay particular attention to the inside of the lips and dental pad, where lesions or raw patches with ruptured membrane adherent may be noted. Vesicles varying in size and number may be seen on the dorsum of the tongue. If these have coalesced and have not already burst it will be noticed that they invariably take the form of ridges or undulations on its upper surface. On manipulation of the tongue it will be found that the membrane, which is of normal colour, breaks away easily leaving a raw red sore with ragged edges and is very painful. If there are multiple vesicles which coalesce, as they tend to do, the whole surface of the tongue may be easily denuded. The vesicular fluid is slightly yellowish in colour and is contained between the epithelium and corium, this fact accounting for the superficial nature of the resulting lesion. Before making a manual examination of the feet, look at the coronet, the commissures of the interdigital space and the bulbs of the heels. Loose epithelium may thus be observed were a vesicle has burst. On picking up the foot and cleaning out the interdigital space, the presence of an unburst vesicle there will cause the animal great pain even on the slightest pressure. A vesicle in this position usually traverses the whole extent of the cleft at the juncture of hair and hoof. Vesicles may also be noticed on the teats of milch cows. These are easily broken and a red sore is left.

In Sheep, which appear more resistant than cattle, the disease usually affects the feet more often than the mouth. Affected sheep usually lie and are made to rise with difficulty. When they do so their movement is likened by the old expression to a "cat on hot bricks." Vesicles are found on the feet in the same position as that described for cattle. Sometimes in advanced cases the claws are shed. As regards mouth lesions the most common site in sheep is on the dental pad and its whole surface may be involved. Lesions are only occasionally found on the tongue in sheep.

In Swine, which are supposed to be very susceptible, feet lesions are most common, as in the case of sheep, but vesicles may be seen on the snout and occasionally on the mammary gland of the sow. Affected swine are usually recumbent and make an unholy row if made to rise.

The vesicle usually encircles the coronary band and frequently the hooves or claws are shed. Sometimes the condition described as "thimbling" is met with. This is where the old horn remains attached while the new horn is forming under it.

Goats.—There were a large number of goats found on infected premises, but, as far as I am aware, no lesions of foot-and-mouth were discovered in them.

Before leaving the premises pay special attention to personal disinfection, including thermometer and torch, and impose all the necessary restrictions on personnel and animals. All animals should be confined to sheds or a properly enclosed yard, dogs tied up, hens housed, cats controlled if possible or with consent of owner destroyed.

I do not propose to deal with the all-important question of disinfection of byres, utensils, etc., but I would like to remark that the dwelling-house where so much contact takes place should not be overlooked.

DIFFERENTIAL DIAGNOSIS.—I do not propose to go into detail as to all the suspected cases which were reported during the epidemic, because all sorts of cases where animals were showing any signs of salivation or lameness were reported. However, no fault was found with that; on the other hand, it was a healthy sign and showed that there was co-operation between the public and the authorities. I

*Presented to the general meeting of the Veterinary Medical Association of Ireland held in Dublin, May, 1942.

will mention certain diseases or affections which may give cause for alarm.

Vesicular Stomatitis.—This most simulates foot-and-mouth as it is a true vesicular eruption and there may occasionally be more than one vesicle present; the lesion or lesions may be as large as a half-crown piece, usually on the upper surface of the tongue. There is salivation with sucking or smacking as in foot-and-mouth and the temperature may be raised. Usually the animal is bright and it may be feeding. These are no foot lesions. When the vesicle is examined it is found to have a tough cover and is not easily broken down. The fluid usually escapes through a small hole in the centre and later the membrane is shed and a red sore is left with clean-cut borders or edges. These edges are quite firm and have not the ragged under-run appearance of a foot-and-mouth lesion. In vesicular stomatitis if two or more vesicles are present on the tongue they do not tend to coalesce. This condition may be more common than is supposed as it occurs frequently in isolated cases among cattle at grass and if not accompanied by systemic disturbance, the animal continues to feed and may not attract attention. The systemic reaction, if present, is more transient than that of foot-and-mouth disease. In vesicular stomatitis healing is from the firm edges of the lesion and the papillae of the part are destroyed, in contra-distinction to a foot-and-mouth lesion where healing is from the base upwards, the epithelium and papillae being gradually restored. Cases of vesicular stomatitis may for safety's sake be kept under close observation for some days owing to the fact that in foot-and-mouth the foot lesions invariably do not develop for some time after the mouth lesions. It may be even necessary to confirm the diagnosis by contact with other animals.

Actinomycosis is usually sporadic and chronic. There is no vesicle formation. Sometimes an ulcer with a punched-out appearance may be seen—generally near the tip of the tongue. On manipulation, the thickened, wooden feeling in the vicinity of the lesion will be noted. The shape of the tongue is usually altered when the lesion is on the free portion. It has a blunted rather than a pointed appearance. Actinomycosis of the hard palate causes ulcers generally near the molar teeth.

Armagh Disease.—This is really a desquamative stomatitis. No vesicle formation and no foot lesions or lameness. No temperature. The epithelium becomes thickened, discoloured, yellowish and is then shed in flakes but the corium is never exposed.

Calf-Diphtheria affects young calves. No vesicle formation. Necrotic ulcers are present on tongue, gums or cheeks.

Foul-in-Foot.—One or more animals may be affected. Foot lesions only, with formation of abscesses, which later become necrotic, in interdigital space. Foot is very sore and swollen.

Mycotic Stomatitis is a condition affecting the muzzle, lips, mouth and palate, but not the tongue in cattle. It is due to a fungus and appears as soft dirty-brown growths adherent to the epidermis which, if detached, may leave superficial erosions. Does not simulate foot-and-mouth. No vesicle formation and no foot lesions.

Variola in Cattle (cow-pox) is confined to the udder and teats where the definite characteristic changes in the lesions can be noted.

Contagious Ulcerative Stomatitis (*Orf*) in sheep sometimes affects large numbers in a flock, generally the young stock. It affects lips, muzzle and feet, the lesions being granular suppurating sores. No vesicle formation.

Foot-rot in Sheep.—No vesicle formation. This usually affects the horny portion of the solar and inner aspects of the foot.

Laminitis in Animals.—No vesicle formation. No mouth lesions.

Injuries from teeth or foreign bodies may cause considerable salivation and even rise of temperature in young animals.

Generally speaking, these or other lesions should not present any difficulty when one knows that foot-and-mouth is a vesicular eruption on mouth and feet with resultant sores and accompanied in the early stages with pyrexia.

In connection with differential diagnosis I will describe to you a suspected case which was reported from a county some time after all restrictions had been removed.

Subject and History.—A black polly two-year-old bullock at grass, noticed not feeding. Taken in by herd and given a linseed oil drench. Four days later the local veterinary surgeon was called in and he noticed lesions on the tongue and reported the case. When seen by me the bullock looked dull; there was profuse salivation also catarrh of both nostrils and animal was breathing heavily. Temperature 105° F. On examination of the mouth I found three lesions on the dorsum of the tongue. Two were situated on either side of the median line, each about the size of a two-shilling piece. They did not communicate. The third, about the size of a sixpence, was more to the tip of the tongue on the left side. All lesions were deep and necrotic looking. I was informed that they had been painted with a solution of hydrarg. biniod. for two days previously. On examination of the feet I found them healthy and there was no lameness, but there was a necrotic lesion about the size of a shilling on the outside of the left fore pastern. My reason for mentioning this case is to point out the difficulties one may encounter by way of complications as this bullock was suffering from a bad chill as well as necrotic stomatitis.

Special Features of the Outbreak

1. The apparently unconnected outbreaks in counties so far apart as Donegal, Offaly, Limerick and Kerry.

2. *The Virulence.*—The initial outbreaks in all centres were very virulent as shown by the large number of animals with early lesions and the rapidity with which the in-contacts developed the disease. Later in the same centres, the virulence seemed to attenuate and the number of animals becoming casualties on infected premises decreased whilst neighbouring herds almost adjoining remained healthy. Then, without any apparent reason, the virulence would suddenly assume its initial potency, causing havoc among livestock on a farm perhaps not a quarter of a mile distant.

3. *The spread of the Disease by Contaminated Milk from Creameries.*—We are very fortunate in having here to-night our C.V.O. (Mr. Whitty) who made a scientific study of this aspect of the case and he will give us his valuable information.

4. *The Comparatively Few Cases of Swine* found affected with foot-and-mouth, although quite a large number were destroyed as in-contacts.

5. *The Number of Outbreaks* where death or illness of calves occasioned the original reports.

In the second last outbreak, in Dublin, a suck calf was reported ill. I found the calf *in extremis* with no lesions of foot-and-mouth. On examination of 29 cows in the herd two of them were affected with the disease (showing vesicles in the mouth).

In another outbreak where the owner had delayed in reporting—and incidentally was fined for his neglect—I found two calves three to four weeks old which had healing lesions on their tongues. This led me to ask myself, if calves develop vesicular eruptions do they thereby escape death from toxaemia?

6. *The Interior of the Mouth.*—The mouth of an animal affected with foot-and-mouth is at any time a nasty sight, but in some outbreaks, especially among bullocks at grass in County Dublin, I found the mucous membrane sloughing and the diseased tissues giving off a very foetid odour.

I have seen cattle, from whose tongues I had stripped the mucous membrane, eating straw in less than 24 hours afterwards. A slight ropy saliva was then the only symptom observable.

7. *Transmission.*—Cases could be cited where infection was carried by hares, cats and rats. On one County Dublin farm where there were 32 two-year-olds pastured, only one of the number was affected with foot-and-mouth—contracted probably from eating grass where a hare, carrying infection, had lain. In yet another case investigated by me in a Dublin dairy yard where, without success, all possible precautions had been taken against introduction of the disease, a rat would appear to have been the vector as the first animal to become affected was a cow housed in the corner of the byre. Near her trough was a rat hole which communicated with another yard where an outbreak had already been confirmed.

8. *Weather Conditions.*—As you will remember, the original outbreak of foot-and-mouth disease in Eire occurred in County Donegal in January, 1941, during weather conditions rarely experienced in our temperate climate. There were deep snow and heavy frosts which lasted for some time and were followed by cold weather into spring and even early summer. The resulting low temperature and lack of sunshine may have played a major part in preserving the virulence of the virus.

When one realises the many adverse conditions which had to be combated, I think wonderful work was accomplished in stamping out the epidemic. To mention but a few of the more obvious drawbacks: take, for instance, the conditions prevailing in Dublin City with its congested areas of cattle lairages and dairy premises, all having unlimited contacts—human and otherwise—over which it was impossible to exercise adequate control. Then in the country, one had to contend with badly fenced farms having boundaries criss-crossing giving rise to a veritable maize almost inconceivable in its complexity. To make matters worse there were innumerable rights-of-way and the fields in most cases were alive with vermin, hares, rabbits, etc., not to speak of the surreptitious movements of animals which were carried on. Add to these difficulties the numerous cases where milk had already been sent to the creameries before suspected and subsequently confirmed outbreaks were reported.

At every step the veterinary officer was assailed with problems perhaps less obvious than those mentioned but hardly less disconcerting. Notwithstanding all the obstacles, we got the epidemic stamped out without a recurrence in any of the affected counties, so I think we may congratulate ourselves on having done really satisfactory work.

Discussion

In the discussion that followed, Mr. J. D. WHITTY mentioned that the disease was introduced into County Donegal in January, 1941, from County Derry, was of great virulence but not typed. At the commencement of the Donegal outbreaks the Department had a staff of 45 Veterinary Inspectors, but when the Dublin outbreaks occurred this was increased, by recruitment, to 97. During the crisis the British Ministry of Agriculture offered the services of some of their senior and junior officers to the Department, a gesture which was much appreciated, but it was decided to carry on with their own forces. The importance of complete co-operation of the public with the veterinary staff was stressed. The majority of the public did co-operate, but where a small minority did not, the results were disastrous. An instance was given where an owner failed to report the existence of the disease. Stock from his premises were sent to Dublin on February 7th, 1941, passing through Dublin lairs and inspection stock yards, and were shipped on February 8th, 1941, to Birkenhead, where they started an outbreak. This owner sent other apparently healthy animals to a local fair on February 11th, 1941, where in-contact animals were infected. From this fair, the disease was carried to other premises and a fair in an adjoining county, also to a Dublin lair, causing the huge Dublin outbreaks which started on February 19th, 1941. From Dublin it is believed the disease spread to Kilkenny and Tipperary. Some causes of spread in the 1941 epidemic were (1) failure to report the existence of disease before animals had been moved off infected premises; (2) spread in this way to congested Dublin lairages and dairy herds with much movement of persons and animals before the disease was discovered; (3) movements of persons on to or out of infected premises; (4) illegal movements of animals; (5) the probability of water-borne infection; and (6) the serious infection caused by virus-contaminated creamery skim milk. Mr. Whitty did not agree that seven days was the minimum incubation period. Calves, after drinking infected creamery skim milk, would often die suddenly 10 or 12 days later. He agreed with Mr. O'Brien as to the difficulty of making a differential diagnosis from vesicular stomatitis. In the latter disease the animals affected do not show the same depression and dullness as in foot-and-mouth disease. One certain method of differentiation is to place four or five healthy animals in contact. If it is foot-and-mouth disease, it will soon spread and diagnose itself. Confusion may be caused by inoculating the mouths of in-contacts as vesicular stomatitis is inoculable and vesicles may appear in the inoculated animals. A laboratory method of differential diagnosis, giving results in 48 to 72 hours, is to use the chorio-allantoic membrane of the chick embryo, when the virus of vesicular stomatitis grows readily, whereas the virus of foot-and-mouth disease does not develop. Replying to Mr. O'Brien, he said calves were sometimes found dead with lesions in the buccal cavity. He also referred to that type of lesion in the mouths of adult cattle not described in text books, where the mucous membrane of the tongue, anterior to the dorsum, is found to be in raised parallel ridges or undulations which are not easily broken by rubbing. These ridges are prolonged on to its under surface, but at the end of one ridge a tiny opening is present, and if the tongue is grasped at this point, the whole of the epithelium peels off.

The epidemic broke out on January 20th, 1941, in County Donegal and spread to 14 counties, the last outbreak being confirmed in Carlow on September 22nd, 1941. There were 556 outbreaks infecting 5,912 cattle, 143 sheep and 198 pigs, and 27,942 cattle, 10,187 sheep, 3,310 swine and 608 goats were slaughtered, compensation for slaughtered animals amounting to £451,021.

The disease was more severe in milch cows and fat cattle than in stores, although some of the latter were severely affected. Sheep were only affected in four outbreaks, although very often exposed to infection. In many of the outbreaks swine were exposed to infection but did not develop the disease. Goats were not affected although often in close contact with affected animals. A striking contrast was noticed in the effect of feeding infected skim milk to young calves and young pigs. The former often died suddenly, while the latter did not die but appeared normal except for vesicles on their feet. Mr. Whitty surveyed the cause and effects of infected creamery skim milk, describing how calves, about six to eight weeks old, were dying suddenly with no lesions. Older calves and adult cattle would later show symptoms of the disease, having become infected from the animals fed on the contaminated milk. The young calves often showed atypical lesions consisting of shallow circular ulcers, about ¼ inch in diameter, situate on both sides of the hard palate almost opposite the corner incisors. There were no tongue or foot lesions. In older calves there were mouth lesions but no lameness, illustrating how such cases could be overlooked without a careful examination of the mouths. In-contact young calves not fed on infected milk appeared to have a strong resistance to infection. Experiments were made to find the most efficient method of killing the virus in the skim milk at the creameries, and it was found that by taking a T from the steam pipe directly into the skim milk delivery tank, it was possible to raise the temperature to 190° F. which was done for not less than one minute. This procedure was made compulsory in the creameries in scheduled districts, and in a wide surrounding area, together with an elaborate system of disinfection of premises, horses, vehicles, churns and persons. Following the compliance with these safeguards, no further cases originated through the creameries. The creameries which had dealt with contaminated milk were shut down until they had been thoroughly disinfected.

Mr. P. E. MULLANEY recalled that this outbreak was not the only severe visitation. There were a number of outbreaks between 1839 and 1883. From 1894 to 1912 Ireland was free from foot-and-mouth disease. Diagnosis of the disease presents little difficulty when a number of animals are affected, but when the disease is not suspected or only one animal affected, extreme care is needed in making a differential diagnosis. Describing the development of a foot-and-mouth lesion, he explained that the lesion begins by fluid outpouring into and between the cells of the lower strata of the rete malpighi. If the fluid spreads through the rete malpighi by solution of cells then the lesion is flat or corrugated. If by local resistance, the fluid is confined, a vesicle is formed, which soon ruptures. He described two cases of vesicular stomatitis in cattle seen during the recent outbreak of foot-and-mouth disease, and the difficulty of differential diagnosis, especially if seen immediately after the rupture of the vesicle. If seen before rupture, diagnosis is simplified because (1) the fluid in the vesicle is not under pressure as in foot-and-mouth disease; (2) the vesicle does not rupture when applying greater pressure than required to rupture a foot-and-mouth vesicle; (3) the lesion is more painful and deeper; (4) the wall collapses and later sloughs; and (5) at the height of fever in vesicular stomatitis the animal shows no signs of depression.

Mr. J. J. COLLINS summarised the impressions he obtained in the recent outbreak. He also agreed that diagnosis was easy when a number of animals all showed a clinical picture of the disease, but was difficult when only one animal showed suspicious symptoms. He thought that mild outbreaks caused by an attenuated virus are more dangerous than those caused by a virulent virus, because the latter attracts the owner's attention more quickly, whereas the former may escape notice for a while.

Mr. J. J. CAMPBELL described how he was able to observe animals in various stages of the disease and later perform *post-mortem* examinations on a number of them. It was found that typical vesicles, mostly ruptured, were very common in the oesophageal groove of the rumen of the cattle. The rumen was congested when the vesicles were unbroken or recently ruptured. Rumenal vesicles were more common when the disease was virulent and spread quickly. In one case unruptured rumenal vesicles were the only lesions found. It was not uncommon to see cattle with a high temperature, salivating profusely and "smacking" for 48 hours before lesions appeared. A large number of animals had teat vesicles only. It was remarkable how many cattle would commence feeding a few hours after the tongue had been stripped of epithelium, also the number of pigs in contact with affected cattle which did not show any symptoms of the disease before or after slaughter.

Mr. M. J. MACCLANCY drew attention to the high degree of infectivity before diagnostic symptoms are shown. In his experience vesicular stomatitis is rarely seen at the ports but non-vesicular conditions due to actinobacillosis and actinomycosis are common.

THE VETERINARY RECORD

SEPTEMBER 11TH, 1943

SCIENCE AND THE CITIZEN

THE future of a nation, in peace as in war, will depend to an ever-increasing extent on the contribution of its scientific workers to its industrial, sociological and agricultural effort as well as on its political organisation; the necessity for exact scientific knowledge on which to base political, and it may be added, professional decisions is slowly becoming recognised. Political and Economic Planning (P.E.P.), who have recently published their 200th broadsheet, are developing a valuable method of research into social problems, and it is probable that the scientific method of approach will provide more and more answers to questions formerly left to the judgment of individuals. It is clear that a broad scientific education and a thorough appreciation of the scientific approach will become increasingly necessary to those concerned with the machinery of government. A classical education is no longer an adequate training for the administrator either at home or within the Empire.

In his address to the Parliamentary and Scientific Committee, extracts from which are published elsewhere in this issue, Sir Stafford Cripps stated that the question of status was important in connection with the obtaining and retaining of personnel, and it was time we had a State Scientific Service apart from but on a parallel with our administrative Civil Service. He believed that such a service should be under the control of a single responsible Minister. In other speeches Sir Stafford has explained the great development of scientific research in Russia which has provided the foundation for her resistance to Germany. In another address he pointed out that before the war the number of University students in this country was just half the number of whole-time staff in American Universities, and one-twentieth the number of students in the U.S.A. Per unit of population, America spent five times as much as we do on six times as many students. Commenting on this speech, the *Times* observed that in this country scientific and technical education had been sadly neglected. Of the 16,000 students graduating annually from the British Universities, only about 3,000 studied any branch of science, and fewer than 2,000 took up applied science and enquiry. It explained the need for greatly increased research to be carried out both by Government and industry. "This country must provide technical instruction for its citizens on a level with that provided in the United States and Soviet Russia."

All this has a direct bearing on our own problems, for veterinary training is in large part "technical instruction" and we know that it has received scant Government support in the past. During the last few years there has been a notable increase in the number of veterinary research workers; unfortunately there has not been a corresponding increase in the facilities for veterinary education, and most of the new workers are conducting their research at specialised institutes and not at the colleges. Not until we have staffs and facilities competent and adequate to carry on vigorous scientific research will veterinary students—the

future practitioners and veterinary officers at home, in the colonies and in the army—be imbued with that scientific attitude of mind which is now recognised to be essential in the modern world. To quote Sir Stafford Cripps: "The exact means by which we are to attain this great expansion of highly trained personnel needs to be worked out in detail, but however we decide that should be done, unless we do it, and unless we get ready to start upon it soon we shall, after the war, find ourselves left far behind upon the road of progress to our very great misfortune and discomfort."

If the Loveday Committee, in consultation with all the bodies concerned, succeed in devising the means to attain this great expansion in the veterinary field, they will have performed a notable service.

Great Britain has been termed the livestock farm of the world and a large proportion of the world's livestock is contained within the British Empire. If we have sufficient imagination to visualise and prepare for the future now, there will be ample opportunity for the veterinary profession to play its part in the new era of scientific progress which we hope will develop when men turn their energies to the exacting tasks of peace.

CLINICAL COMMUNICATION

Condyloid Fracture of the Humerus in a Dog

A. N. ORMROD, M.R.C.V.S.
Woodchurch, Wirral, Cheshire

Subject.—Six-year-old dog of small terrier type. Accidental damage to elbow joint.

Examination.—Examination revealed an oblique fracture of the humerus involving the lateral condyle. There was considerable displacement of the condyle.

Treatment.—Reduction and fixation by usual methods was tried but was quite useless. The owner was insistent that some effort should be made to restore the usefulness of the limb. It was decided, therefore, to open up the fracture and try direct fixation.

Under strictest aseptic precautions and using the so-called "non touch" technique the fracture was exposed. It was found to extend from the articular surface through the coronoid and olecranon fossae to the lateral condyloid crest. Pegs, screws, kangaroo tendon, etc., were prepared and ready to hand, but the separated portion of the bone was too small for any drilling, etc. It was therefore separated from its muscular and ligamentous attachments and completely removed. The wound was then closed, dressed with sulphanilamide and covered with a sterile dressing held in position with an adhesive bandage.

With some trepidation the patient was watched during the following week. Healing occurred by first intention and the dressing and sutures were removed at the end of the week. There was little pain in the joint and although the dog only used the leg as a prop he was discharged.

When seen again at the end of a month the limb was in full use and six months later, apart from an almost indiscernible limp, the limb, in spite of only half a joint at the elbow, is as much use to the dog as the undamaged one.

A NEW TERMINOLOGY

"Used as we are to ordinary chemical symbols, to the employment of letters of the alphabet for differentiating the vitamins, and even to some of the complex signs employed in physical chemistry, it is probable that not a little time will elapse before we become accustomed to a new style of formula which the biochemists are introducing," writes "Onlooker" in the issue of *The Pharmaceutical Journal* of August 21st. "In the *Lancet* last week, in an article on shock-producing factors, extracts of acetone dried muscle (A.D.M.) are described, according to their potency, in terms of muscle shock factor (M.S.F.) as My_a, My_b, My_c, and after special purification, as My_s, with a further sub-division depending upon the experimental animal from which the extract is derived. Are we to look forward to getting prescriptions which read something like this: 'A.D.M., M.S.F., My_k rabbit, $\frac{gtt_0}{M.L.D.}$'?"

ABSTRACTS

[EFFECT OF INJECTIONS OF NOVOXIL ON THE BOVINE UDDER INFECTED WITH MASTITIS STREPTOCOCCI. Spencer, G. R., and Beach, B. A. (1943.) *Amer. J. vet. Res.* **4**. 45.]

The authors have studied the effects of novoxil injections on the udders of two aged cows with a history of recurrent mastitis. One cow had fibrosis in one quarter, the other cow had fibrosis in all four quarters. *Str. agalactiae* was isolated from all five quarters. After treatment the animals were examined every day for reaction in the udder tissue, and bacteriologically sampled every three days. Sixteen days after treatment the cows were slaughtered and the udders removed for examination. Novoxil produced an acute clinical inflammation, the secretions containing large amounts of catalase and chlorides. The degree of infection was markedly reduced but *Str. agalactiae* was not completely eliminated. Examination of the udder tissue microscopically revealed acute inflammatory changes superimposed upon the chronic lesions caused by long-standing infection. Treatment of 21 dry quarters in six infected cows resulted in the elimination of *Str. agalactiae* from eleven of them, with little inflammatory reaction.

D. L. H.

* * * * *

[THE EFFECT OF BRUCELLA ABORTUS ON THE BOVINE UDDER AND ITS SECRETION. Emminger, A. C., and Schalm, O. W. (1943.) *Amer. J. vet. Res.* **4**. 100.]

Assessing the quality of milk by means of the strip cup, *pH* of the milk, percentage chlorine, leucocyte counts and bacterial counts, the authors have compared milk from normal cows and from cows infected with *Brucella abortus*. Visible particles were not seen in the fore milk, and the *p*H, leucocyte count and bacterial count were within normal limits. After slaughter the entire mammary tissue was carefully examined for gross lesions. None were found. In 17 out of 19 quarters infected with *Brucella abortus* histopathological changes were observed. The commonest changes were aggregations of lymphocytes and plasma cells in the interstitial tissue. In some instances epithelioid cells and giant cells were to be seen. Where the lesion was more extensive proliferation of connective tissue occurred. Less commonly an exudation of neutrophile leucocytes in the alveoli accompanied by fatty degeneration and desquamation of the epithelium was demonstrated.

D. L. H.

* * * * *

[SULPHAGUANIDINE AS A PROPHYLACTIC DURING THE PERIOD OF ACQUIREMENT OF RESISTANCE BY CHICKENS TO CAECAL COCCIDIOSIS. Allen, R. W., and Farr, M. M. (1943.) *Amer. J. vet. Res.* **4**. 50.]

Since it appears that actual infection with coccidiosis is necessary in practice if a satisfactory immunity to this disease is to be produced, the authors reduced the prophylactic dose of sulphaguanidine to 0·5 per cent. in the food in an endeavour to find the level of dosage which would give sufficient protection to chicks on infected ground without making them completely resistant and hence susceptible to infection when the dosing is stopped. They used three groups of 49 and three of 40 chicks and found that the mortality during the dosing period, *i.e.*, when first exposed to infection, was considerably less in the treated group (10 per cent.) than in the control group (57 per cent.). When re-exposed to infection 38 days later no mortality occurred and only slight lesions were found on *post-mortem* examination. A control group of susceptible chicks showed a 25 per cent. mortality. The authors conclude that this method of prophylaxis is promising.

P. S. W.

Weekly Wisdom

Against knowledge I have, as the light cynic observed of a certain lady's past, only one serious objection—that there is so much of it. . . . If, still putting all your trust in knowledge, you try to dodge the difficulty by specialising, you produce a brain bulging out immoderately at one side, on the other cut flat down and mostly paralytic at that: and in short so long as I hold that the Creator has an idea of a man, so long shall I be sure that no uneven specialist realises it.—Sir Arthur Quiller-Couch: Cambridge Lectures.

* * * * *

Smeaton Paymaster, two-year-old Clydesdale belonging to Messrs. R. and J. Sommerville, of Smeaton, Dalkeith, was killed by lightning while standing in a field. The stallion was first in its class and reserve for the Cawdor Cup at the Glasgow stallion show held last March.

REVIEW

[**U.S. DEPARTMENT OF AGRICULTURE YEAR BOOKS:** I (1941). "Climate and Man"; II (1942) "Keeping Livestock Healthy." $1·75, from the Superintendent of Documents, Government Printing Office, Washington, D.C.]

I.—This is a comprehensive but largely non-technical volume of 1,250 pages, which traces the effects of climate upon man, chiefly *via* its effects upon agriculture. Preceded by a 60-page summary, the book is divided into five major sections.

The first deals with climate as a world influence, including a historical survey, and the effects of climate, past and present, on the general world pattern of agriculture and soils.

The second discusses climate and agricultural settlement, including limitation due to weather conditions and the types and history of settlement in the different regions of the United States.

The third section deals with climate in relation to different crops—moisture, temperature, soil, and the limits of areas of cultivation due to these factors.

The fourth section is largely a résumé of modern meteorology and the value of weather forecasts, whilst the fifth is concerned with climatic data of the world in general and each of the United States in particular.

Most of this book is of only indirect interest to the veterinarian, but the chapters on climate and forage crops, grazing, livestock production and worm parasites are well worth reading.

II.—This volume of some 1,200 pages is a most valuable and well documented survey of veterinary science to date. Divided into nine sections, the first deals with the fundamentals of disease control, the second with diseases common to several species. Then follow in order sections devoted to horses and mules, cattle, swine, sheep and goats, poultry, dogs and cats, while Part 9 is devoted to diseases and parasites of wild animals, game and fur-bearing animals. The only omission of any note is that no space is given to the rabbit and its diseases. In all other respects this is a most comprehensive *vade mecum* that should be in the possession of veterinary surgeons in this country. We can only hope that war conditions will not make it difficult to obtain copies of this book here.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Sept. 15th.—Meeting of the Western Counties Division, N.V.M.A., at Exeter, 2 p.m.

Sept. 16th.—Annual Meeting of the Society of Veterinary Practitioners at Nottingham, 2.15 p.m.

Sept. 16th.—Summer Meeting of the Eastern Counties Division, N.V.M.A., at Ipswich, 2 p.m.

Sept. 17th.—Meeting of the Welsh Branch, N.V.M.A., at Shrewsbury, 2 p.m.

Sept. 18th.—Meeting of the Southern Counties Division, N.V.M.A., at Ringwood and Christchurch, 2 p.m.

Sept. 27th.—R.C.V.S. Committee and Council Meetings, 16, Bedford Square, W.C.1.

Sept. 28th.—Meeting of Council, N.V.M.A., Connaught Rooms, Great Queen Street, Kingsway, W.C.2.

Sept. 28th.—Special Meeting of the Society of Women Veterinary Surgeons, Friends House, Euston Road, N.W.1, 3 p.m.

Sept. 28th.—Meeting of the Veterinary Inspectors' Association, at the London School of Hygiene and Tropical Medicine.

Sept. 29th and 30th.—**N.V.M.A. Annual Meeting and Conference, London School of Hygiene and Tropical Medicine.**

* * * * *

N.V.M.A. Annual Meeting and Conference

Conference.—As already announced, a paper on "The Veterinary Surgeon in the Development of the Colonies" is to be given by Major J. M. Smith, O.B.E., M.R.C.V.S., at the Association's forthcoming conference. We now have pleasure in intimating that Professor W. Kearney, M.R.C.V.S., of the Veterinary College of Ireland, Dublin, will open discussion upon this subject.

The paper on "Improvement of Livestock" which is being given by Professor Robert Rae, B.AGR., C.D.A., is to be opened by Colonel E. M. Curley, Chief Veterinarian, U.S.A. Veterinary Division, European Theatre of Operations; also by Dr. Tj. Bakker, representing the Netherlands Government; and also by Mr. S. L. Hignett, B.SC., M.R.C.V.S.

Luncheon.—Members are urged not to leave their requests for tickets for the luncheon until the last minute. They are asked to write for them *now* and, when more than one ticket is required, to state the name or names of those concerned—names are required for the seating arrangements.

Reception.—It is hoped that members will advise the General Secretary if they intend coming to the President's reception. Tickets—purely for admission purposes—are available from him.

* * * * *

Roll of Honour

We learn with deep regret, from the Roll of Honour published in the current issue of *The University of London Gazette*, that in addition to Commando Peter Keast and (graduate) Pilot-Officer W. T. Richardson, M.R.C.V.S., whose deaths have been recorded in our columns, the following students of the Royal Veterinary College have lost their lives in the service of their country: G. G. Allpress (Home Guard) and I. Morgan-Thomas (Sub.-Lt., R.N.V.R.).

* * * * *

R.C.V.S. OBITUARY

Vickery, John Tucker, Mount Pleasant, Launceston, Cornwall. Graduated London, March 31st, 1885. Died August 25th, 1943; aged 81 years.

Mr. J. T. Vickery, M.R.C.V.S.

After spending a lifetime in the town as a veterinary surgeon, few people were better known in the borough of Launceston and the surrounding area. A keen sportsman, he could generally be seen following the hounds. His services were in frequent demand in connection with the local agricultural shows, and for many years he was the veterinary surgeon for Launceston Agricultural Society. Mr. Vickery's wife died about two years ago.

* * * * *

PERSONAL

Birth.—Stephens.—On September 3rd, 1943, at the Victory Hospital, Frome, to Jean (*née* Anderson), wife of T. K. Stephens, B.SC., M.R.C.V.S., a son.

* * * * *

ROYAL ARMY VETERINARY CORPS

The following announcement is made in the issue of *The London Gazette* dated August 24th, 1943: The undermentioned to be Lts.: James Brown (282914), James Donald (282993), July 24th, 1943; Frank Geoffrey Cyril Lawfield (287244), Charles McNulty (282909), July 26th, 1943.

* * * * *

RESEARCH AND TECHNICAL DEVELOPMENT IN GREAT BRITAIN

Future Requirements and Supply of Personnel

Recently Sir Stafford Cripps, M.P., addressed the Parliamentary and Scientific Committee on "Future Requirements of Research and Technical Development in Great Britain and Supply of the Necessary Personnel," the salient points being as follows:—

There was a great volume of research in universities, in private institutions, by industrial research organisations and by private firms, and also in a limited number of Government institutions. There was no sort of co-ordinated planning, however, as a basis for the general productive effort of the country. Nor indeed was research regarded generally as a vital part of the industrial effort. It was often regarded as a rather extravagant frill to the industrial effort or, in some cases, a good advertisement for the commodity with which it was associated. If one compared the pre-war effort in this country to either the private enterprise research of the United States of America or to the Government-planned research of the Union of Socialist Soviet Republics, certainly we in this country were lagging very far behind. We had not even now realised to the full the place that research must indeed take in relation to development and production. He thought that was partly due to the view that we took of the status which was given to the research scientist. We gave him a position which was greatly inferior to that either of the administrator or of the production engineer or chemist,

and as a result of that lower status, it was extremely difficult either to obtain or to retain the very highly skilled and qualified staff which was necessary for the research effort. As regards this lack of personnel at the present time, we were, of course, handicapped by the relatively small output of suitable people from the universities and higher technical colleges. It was primarily an educational problem—this provision of personnel—which needed most urgent treatment. In this regard, one had to remember that the research worker was only one of a team of scientists and technicians who have to apply the results of research in the production of commodities and materials of various kinds. It was of no value to extend research unless you also extended the quality and quantity of the skilled technical personnel required to carry out the technical applications of that research.

The whole problem of scientific personnel and research work was a very large and complex one covering all the industries in the country and one had to bear in mind all the time that one was not dealing with a frill or a hobby, but something which, indirectly, was a part of our industrial life. It was not a mere scientific matter, it was an industrial matter, and many of the problems which arose formed an appropriate linkage between industry and science. Whether we looked at it from the competitive international angle or from the point of view of how great a contribution we, as a nation, could make to the progress and development of civilisation, it was certain that research and technical development were the foundations upon which we should have to frame the future prosperity of this country. The period of civilisation in which untreated raw materials could be used in manufacture or simple processes were applicable for the preparation and manufacture of those raw materials or the final products, was certainly past and completely past. Modern industry demanded a continual refinement of those processes based not upon fortuitous experience in the industry itself, but upon the work of physicists and engineers in the research laboratories.

So far as the question of planning the educational facilities for the ultimate provision of personnel was concerned, the State had long since taken over the major responsibility for the general planning of educational facilities and now provided either directly or indirectly a very large measure of the finance for that education. But it had not yet been decided as to how we were to plan and manage the whole range of basic and applied research that was necessary for the future of our industries. In the peculiar area of defence covering all the Defence Services the State had always undertaken a very considerable quantity of research itself, and even outside that somewhat narrow field, it had set up a number of institutions as the National Physical Laboratory, the Royal Aircraft Establishment and the Agricultural and Medical Research Institution, which had done a great deal of basic valuable work and which were of value to our industries, but the total volume of that work was far too small for our requirements and far too small to support the general structure of our industries, apart from specialised industries which it might serve in a particular way. That effort of State organised research had been supplemented by the Research Institutions of many industrial groups, by the research laboratories of private firms, and also by the work that was being done at the universities, either for particular clients in some cases or for the general advancement of university work. The degree of research in the industries of course varied enormously. In some it was better organised than in others. What was required was to increase the volume of our research, both basic and applied, and, at the same time, to introduce some measure of planning so as to make the best use of our available resources. We must also decide through what agencies we wanted this research to be carried out and how much of our national wealth we were prepared to devote to the research itself as well as to the provision of the personnel.

In his view, privately run research institutions were not quite the same thing as national organised institutions. They had not quite the same functions. There were two important differences from the national point of view. First of all, these private industrial research institutions were apt to be partial and specialised in their application. That arose from the very nature of their organisation. And secondly, they depended for the volume of their work upon the prosperity or otherwise of the industry with which they were specially connected. That did not mean that they were in themselves a bad thing, but it did mean that they needed supplementing by some national research institutions. These institutions were, of course, very elaborate and very expensive matters, and many industries just could not afford to set up adequate research laboratories of their own. Indeed, the number of such really complete institutes was comparatively small.

Sir Stafford had mentioned earlier the question of status, which he regarded as a most important one in connection with the obtaining and retaining of personnel, and it was time that we had a State Scientific Service apart from, but on a parallel with, our administrative Civil Service. He believed that such a service should be under the control of a single responsible Minister so that he could draw together all the threads of scientific endeavour so far as the State was concerned. But the actual administration of the research itself should, he thought, be under a body of scientists similar, perhaps, to the Academy of Science in Soviet Russia, or to the Academia Sinica in China, and it should be their task to decide upon the classes of research institutes that required to be set up and also upon what broad lines the research should be carried out and planned, leaving a very large measure of local control to the actual head of the institute itself. It might possibly be that the Royal Society could perform that function if it had a special administrative staff for the purpose. It was most desirable that it should be left to scientists to decide these matters though, technically, their decisions would, of course, have to be in the form of advice because the Minister responsible for the expenditure would have to have the ultimate decision in order that he might be accountable to Parliament for the use that was made of the money. Such a development was nothing more than a natural growth out of the present rather muddled system as it existed. Sir Stafford felt that the moment had arrived for the introduction of a Consolidating and Amending Bill (to use a Parliamentary phrase) to deal with this whole question and to correlate it with the work of the universities and the industrial research institutions. He believed that the question of status, of salaries of research workers and scientific staffs must be put on a proper basis to attract and keep the best men.

It was clear that the amount of our efforts pre-war was very much less than was needed and was much less than the other great industrial countries, including Germany. We must envisage spending at least ten times as much after the war upon research, a figure which would even then only bring the proportion up to that already spent in the U.S.A. and in the U.S.S.R.

Sir Stafford said that he was extremely glad that the Parliamentary and Scientific Committee was taking so great an interest in what he regarded as a vital matter, and he hoped that none of the members after the war would ever take the view that this was a matter in which we could, or ought, to economise. In fact, of course, the more depressed our economy and our industries, the more we ought to press forward our research and development in order to give those industries the necessary stimulation and advantage. We had undoubtedly lagged far behind in this matter. The war had allowed us to catch up in certain fields but we must try and extend the same scale and expenditure over the other non-warlike fields and to try and do that in an orderly way which would assure that each and all of those fields was adequately covered.

* * * * *

THE SUPPLY OF WATER TO RABBITS AND GUINEA-PIGS

To ascertain the amount of water required by rabbits Kennaway (*Brit. Med. J.*, 1943, June 19th, p. 760) placed two, weighing 2,650 g. (Rabbit A) and 2,080 g. (Rabbit B), on a quite dry diet of bran and clover hay, and supplied water by placing in the roof of each cage a bulb of water, of the kind holding 160 to 170 c.c., which is used for rats in laboratories. The animals soon learned to drink from the nozzles, and after a few days the larger rabbit, A, would empty the bulb in a day, while the smaller drank rather less. After a week a bowl of water was placed in each cage: Rabbit A was not interested, while rabbit B drank a little in a leisurely manner. Evidently they were not short of water, and their body weights had not altered. Hence a 2·5-kilo rabbit on a dry diet will take about 160 c.c. of water, or 65 c.c. per kilo, a day. This calculation provides approximately 4·5 litres of water for a man weighing 11 st., or 70 kilos; this is about twice the total intake of water in food and drink of an average human adult.

This result, Kennaway says, provides a curious commentary on the doctrine that rabbits "don't drink." Possibly, he says, the rabbits which were the subject of this experiment took more water than was absolutely necessary. He also found that guinea-pigs would drink freely from glass bulbs, even when supplied with greenstuff. It is merely a superstition, he contends, that rabbits and guinea-pigs have some special capacity for doing without water: there seems to be no reason why they should not drink as much as they like. Rabbits which receive an ample dry diet and inadequate water probably suffer not only from want of water but from want of food. This is suggested by their poor condition and the scanty contents of the gut found *post-mortem*, and by their behaviour when water is supplied. If one places a bowl of water before such an animal one may see that after a long drink it goes at once to the dry food and eats greedily. After finally discussing the watering of rats and mice in laboratories, Kennaway concludes that "so many ways of giving clean water are now available that the 'moist' food system should be considered obsolete."

CONTROL OF DISEASES OF DAIRY CATTLE

STATEMENT SHOWING THE NUMBER OF UNDERTAKINGS NOTIFIED TO THE MINISTRY OF AGRICULTURE DURING THE MONTH OF AUGUST, 1943

County	Undertakings Notified		Total Undertakings		
	During Month	Previously	Number	Number of Cattle	
				Cows	Heifers
ENGLAND AND WALES					
Bedford	—	39	39	857	489
Berks	—	89	89	3,170	2,014
Bucks	3	75	78	2,037	1,443
Cambridge	—	17	17	367	147
Chester	15	367	382	12,573	4,344
Cornwall	—	8	8	154	103
Cumberland	3	55	58	1,415	1,250
Derby	5	278	283	8,298	4,711
Devon	20	177	197	3,229	1,903
Dorset	—	69	69	2,165	1,136
Durham	6	242	248	5,645	1,915
Essex	1	237	238	8,420	4,801
Gloucester	—	87	87	2,642	1,453
Hampshire	1	353	354	10,163	6,213
Hereford	1	31	32	471	251
Hertford	—	66	66	2,116	1,240
Hunts	—	14	14	529	366
Isle of Ely	—	2	2	26	54
Isle of Wight	—	18	18	321	155
Kent	7	132	139	3,147	1,740
Lancs	7	201	208	5,879	1,680
Leics.	—	84	84	2,236	1,583
Lincs (Holland)	—	4	4	45	11
Lincs (Kesteven)	1	20	21	268	143
Lincs (Lindsey)	3	77	80	1,606	860
Middlesex	—	13	13	529	241
Norfolk	3	174	177	5,374	3,648
Northants	—	73	73	1,989	1,336
Northumberland	1	52	53	1,709	818
Notts	5	119	124	2,925	1,668
Oxford	—	39	39	1,125	973
Rutland	—	9	9	157	109
Salop	4	246	250	7,750	3,722
Soke of Peterborough	—	1	1	37	31
Somerset	8	183	191	5,267	2,338
Staffs	1	192	193	5,616	2,940
Suffolk, E.	2	94	96	2,287	1,663
Suffolk, W.	1	46	47	1,012	601
Surrey	6	109	115	3,206	1,391
Sussex, E.	2	178	180	4,754	2,629
Sussex, W.	2	117	119	3,334	1,895
Warwick	2	120	122	3,104	1,824
Westmorland	1	18	19	505	569
Wilts	1	81	82	3,524	1,626
Worcester	2	143	145	3,083	1,525
Yorks, E.R.	1	87	88	1,390	779
Yorks, N.R.	5	105	110	2,183	1,315
Yorks, W.R.	1	249	250	6,372	2,375
Anglesey	1	38	39	694	447
Brecon	1	3	4	110	62
Caernarvon	—	107	107	1,749	908
Cardigan	—	17	17	250	197
Carmarthen	5	201	206	3,640	1,892
Denbigh	1	60	61	1,235	623
Flint	2	103	105	2,350	1,002
Glamorgan	2	81	83	1,340	488
Merioneth	—	11	11	138	82
Monmouth	3	45	48	1,081	625
Montgomery	—	15	15	266	194
Pembroke	1	91	92	1,707	1,079
Radnor	—	—	—	—	—
TOTALS	137	5,962	6,099	159,571	83,620
SCOTLAND					
Aberdeen	1	26	27	1,139	333
Angus	—	19	19	703	251
Argyll	—	5	5	90	83
Ayr	1	52	53	1,953	1,595
Banff	—	2	2	103	20
Berwick	1	1	2	53	22
Bute	—	—	—	—	—
Caithness	—	—	—	—	—
Clackmannan	—	6	6	215	160
Dumfries	—	17	17	911	727
Dumbarton	—	3	3	105	86
East Lothian	—	7	7	191	100
Fife	2	30	32	1,142	577
Inverness	—	9	9	291	186
Kircardine	1	4	5	231	126
Kinross	—	4	4	77	34
Kirkcudbright	—	16	16	951	728
Lanark	—	21	21	760	558
Midlothian	—	1	1	44	69
Moray	—	—	—	—	—
Nairn	—	1	1	14	—
Orkney	—	—	—	—	—
Peebles	—	5	5	93	55
Perth	1	30	31	711	426
Renfrew	—	9	9	384	297
Ross-shire	—	4	4	128	72
Roxburgh	—	—	—	—	—
Selkirk	—	—	—	—	—
Stirling	—	28	28	846	615
Sutherland	—	3	3	74	52
West Lothian	—	2	2	99	70
Wigtown	—	31	30*	2,038	1,077
Zetland	—	—	—	—	—
TOTALS	7	336	342	13,346	8,319

NOTES.—(1) *Operative periods of undertakings*: 1 year = 1,491; 2 years = 468; 3 years = 4,140. (2) *Undertakings renewed for a further period*: 1 year = 110; 2 years = 49; 3 years = 32. (3) *Undertakings not renewed at end of operative period* = 48. (4) The figures showing the number of undertakings notified during the month relate to entirely fresh undertakings and do not include undertakings renewed for a further period. Undertakings which have been cancelled, or not renewed, are not included in the figures for previous notifications.

Duration of Undertakings: 1 year, 84; 2 years, 34; 3 years, 224.

* One herd in Wigtownshire, consisting of 102 cows and 90 heifers, has now been sold, thus reducing the number of undertakings in that county to 30. An amended form of undertaking submitted in respect of a herd in Sutherland shows that the number of cows and heifers in that herd has been reduced by 3 and 9 respectively. The totals in the statement for month ended 31.8.43 have, therefore, been amended accordingly.

* * * * *

CONTROL OF HILL RAMS

The Hill Rams (Control) Order, recently brought into force, confers upon County War Agricultural Executive Committees power to control the use of rams on open or unfenced hill grazings in England and Wales.

This Order of the Minister of Agriculture gives effect to certain advance recommendations of the Hill Sheep Farming Committee of the Agricultural Improvement Council. It provides that all uncastrated ram lambs shall be removed from open or unfenced hill land before August 31st in any year; and that rams shall only be allowed on such land during the months of November and December. Executive Committees have powers to prohibit the turning out on to open or unfenced hill land of any specified ram which is, in their opinion, of inferior or unsuitable type. Any ram found on open or unfenced hill land in contravention of the Order may be seized by any police officer or any person authorised by the Minister or by an Executive Committee.

In order to deal with inferior rams whose ownership cannot be established, the Minister has formally delegated to Executive Committees his powers under Defence Regulation 53 to requisition any such rams found on open or unfenced hill land.

The purpose of the Order is to prevent the premature service of hill ewe flocks which results in too early lambing and undue losses in severe winters; and also to secure an improvement in the type of ram in use on open hill land.

The Order applies to all open or unfenced hill land in the counties of Northumberland, Cumberland, Westmorland, Durham, Yorkshire (North and West Riding), Lancashire, Derbyshire, Cheshire, Shropshire, Herefordshire, Monmouth, Devon, Cornwall and all Welsh counties, with the exception of Anglesey.

* * * * *

HYDATID DISEASE IN WALES

Surg.-Lt.-Commander Wolfe, of the Welsh National School of Medicine, in the issue of *The Lancet* of June 26th, 1943, gives the following findings as the result of his experience in the treatment of cases of hydatid disease in the Royal Infirmary, Cardiff, between 1936 and 1938. From the hospital records from 1926 to 1938 the disease is shown to be more common in Wales than elsewhere in Great Britain. In the 34 cases treated, the age at the time of admission ranged between 2½ years and 68 years. Just over half the cases were diagnosed before operation, a fact which emphasises the need to bear the condition in mind and to make full use of the laboratory. The mortality in the series was 16.

Treatment was too varied to justify definite conclusions. Though injection of 1 to 2 per cent. aqueous solution of formalin should be a routine in most cases, it does not seem to be without danger when employed on cysts of the central nervous system.

Factors accounting for the high incidence in Wales are the ineffective supervision of abattoirs in some districts, and the lack of popular knowledge of how to avoid the disease. Dogs are undoubtedly the chief source of human infection, becoming infested by feeding on the offal of infected sheep. In some districts of South Wales offal from ineffectively supervised abattoirs is either thrown on refuse heaps or sold for manure, and no provision is made to prevent dogs getting at it. Cysts were found in 0·5 per cent. of the sheep killed at the Roath Abattoir, Cardiff, in the three-year period 1934-36: every one was identified as echinococcal. "Veterinary surgeons differ as to the percentage of dogs infested. It is probably not high, since the incidence of infection in sheep is low. The close proximity of grazing land in Wales to densely populated mining villages makes it easy for dogs to foul kitchen gardens with their excreta. Since the dog's coat and muzzle may be contaminated, fondling of animals by those in contact with them may be a ready means of transmission."

SIR WALTER LANGDON-BROWN ON THE IDEA OF A STATE MEDICAL SERVICE

Writing in the *British Medical Journal* (1943, June 5th, p. 710), Sir W. Langdon-Brown says: "The correspondence I have received since you published my letter on April 3rd indicates how widely spread in the profession is the alarm at the idea of a State Medical Service. . . . 'Indeed, as time passes [a correspondent writes to him] there is a growing concern as the full implications of State service are more clearly realised.' I sympathise with our representatives faced in conference by politicians practised in the arts of suave diplomacy. As a profession we are under the handicap inherent in a democracy; we lack a complete alternative plan and we are not all of the same mind. We are as anxious, however, for the good health of the community as anyone; indeed, we showed that interest long before the somewhat belated conversion of the politicians. The principle of insurance has been conceded, and we should concentrate on the question of keeping control of the conditions under which we serve the community. But protests against exploitation must continue, and signs are not lacking that these are beginning to have some effect. Lord Dawson's statesmanlike appeal for evolution and not revolution will carry weight. Even *The Times* in its leader of May 17th is less coercive in tone, and appeals to our 'tradition of disinterested social service.' Yes, but in return we claim the right to justice and proper consideration."

* * * * *

DISCIPLINARY POWERS OF THE GENERAL MEDICAL COUNCIL

A decision of the General Medical Council to erase the name of Dr. E. G. Spackman from the Medical Register for "infamous conduct" has been the subject of appeal which has reached the House of Lords for a decision. If a medical man in the pursuit of his profession has done something with regard to it which will be reasonably regarded as disgraceful or dishonourable by his professional brethren of good repute and competency, it is open to the General Medical Council, if that be shown, to say that he has been guilty of infamous conduct in a professional respect. (*Allenson* v. *G.M.C.*, 1894.) It has also been held that the Courts have no power to interfere with a decision of the General Medical Council made after due enquiry. (*Allbutt* v. *G.M.C.*, 1889.) Dr. Spackman alleged, however, that the Council had not instituted a due enquiry in his case, but accepted the decision of the Divorce Court, finding adultery with the wife of a man who had brought divorce proceedings in which Dr. Spackman was cited as co-respondent, it being alleged that at all material times he stood in professional relationship with her. He wished to submit evidence, which he and his advisers considered might have established his innocence, but the Council decided that they could not go behind the decision of the Court.

Dr. Spackman appealed to the Divisional Court which by a majority refused his application to grant an order quashing the decision of the General Medical Council, on the ground that they had not held a "due enquiry." He then went to the Court of Appeal. The General Medical Council stated that they had always accepted the decisions of the Divorce Court as proof of adultery, and they asked for guidance in the matter. The Court of Appeal decided in favour of Dr. Spackman. The issue was the correct interpretation of Sec. 29 of the Medical Act, 1858, which provides that "if any registered medical practitioner shall be convicted . . . of any felony or misdemeanour . . . or shall after due enquiry be adjudged by the Council to have been guilty of infamous conduct in any professional respect . . . his name may be removed from the register."

Lord Justice MacKinnon said that Sec. 29 drew a distinction between the procedure when a criminal offence had been committed and one in which a charge of misconduct was made. In the latter case there must be a due enquiry, which would involve a full and fair consideration of any evidence which the person accused desired to offer for the consideration of the Council. The Council were entitled to accept the finding of the Divorce Court as prima facie evidence of adultery, but if the person accused tendered additional evidence the Council ought to hear it.

Leave was given to appeal to the House of Lords, and that Tribunal has confirmed the decision of the Appeal Court. The Lord Chancellor pointed out that Sec. 29 draws a distinction between a case in which the accused practitioner had been convicted of a felony or misdemeanour and a case in which the allegation of infamous conduct was not connected with a criminal conviction. Where there has been a criminal conviction the Council is not compelled to institute a "due enquiry." The practitioner cannot go behind it and endeavour to show that he was innocent of the charge and should have been acquitted. If he wished to appeal, he could have recourse to the ordinary law courts. But when the charge of infamous conduct is not based on a criminal conviction, but on a decision in civil proceedings, the Council must institute a due enquiry and they must give the doctor an opportunity of challenging the correctness of the conclusions and of calling evidence in support of his contention.

In cases of unprofessional conduct brought before the Council of the Royal College of Veterinary Surgeons the Act of 1881 provides that the Council may remove the name of a member from the Register if he has been convicted of a misdemeanour or higher offence, or has been shown to have been guilty of conduct disgraceful to him in a professional respect. There is here the same distinction between cases where there is a conviction on a criminal charge and cases where conduct disgraceful in a professional respect is alleged.

Section 8 of the Act provides that the Council shall "ascertain the facts of the case by a Committee of the Council, the powers of the Committee being exercisable by not fewer than three members of the Committee, and the Report of the Committee after hearing the person concerned if he so desires, is conclusive as to the facts," but the Council is at liberty "to form its own judgment on the case independently of any opinion of the Committee."

In the case of a conviction on a criminal charge the duty of the Committee of the Council is to ascertain whether in fact a conviction has been recorded against the accused. In the other class of cases the duty of the Committee is to ascertain whether there are grounds on which the member can reasonably be declared to have acted in a manner disgraceful to himself in a professional respect. The Standing Orders of the Council provide separate procedures for each of these two classes of case, and the situation which has given rise to the Spackman case is not likely to arise in regard to a registered veterinary surgeon.

* * * * *

Mr. J. C. Leslie, executive officer of the Essex W.A.E.C., has been appointed deputy secretary of the National Farmers' Union.

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

* * * * *

SHORTAGE OF VETERINARY ASSISTANTS

Sir,—In view of the great shortage of veterinary assistants owing to the fact that many recent graduates are going into the R.A.V.C., would not the Ministry of Agriculture consider releasing members of their permanent veterinary staff for service with practitioners for the duration of the war?

However desirable inspections of dairy herds may be, surely this could be dispensed with during this world crisis without great risk of damaging the health of the nation.

General practitioners are working from 12 to 15 hours daily and this cannot go on indefinitely.

Yours faithfully,

Springhill House, FRANK CHAMBERS.
Penn,
Wolverhampton.

August 27th, 1943.

* * * * *

"TOXIC IDIOSYNCRASY TO SULPHAPYRIDINE"

Sir,—It is surprising that no comments have been made concerning the letter of Mr. Murphy in your issue of August 7th, regarding toxic idiosyncrasy to sulphapyridine.

I think that Mr. Murphy has overlooked two very important points, which make his assumption of toxicity quite erroneous. In the first place, it has always been stated that insufficient dosage of sulphonamides does more harm than good. Assuming the weight of the bitch to be 50 lb., she should have had seven 0·5 gramme tablets initial dose (not two as stated) and two three times daily thereafter.

In the second place, hysteria or fits are surely a common sequel to distemper with or without the administration of sulphapyridine.

I am not in a position to criticise the case of the 12-year-old girl, but I should be pleased to hear other opinions concerning this case, as I was under the impression that sulphapyridine never permanently affected the mental condition of the patient.

Yours faithfully,

6, Earlswood Road, GRAHAM E. JOSS.
Redhill,
Surrey.

August 21st, 1943.